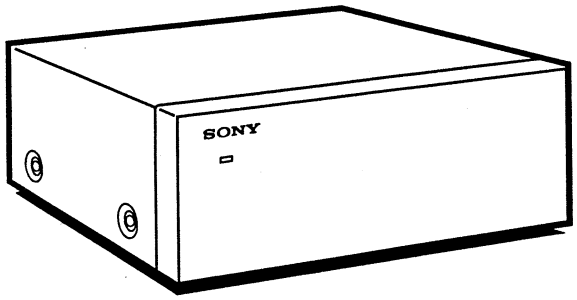
IFU-1271/1271M

SERVICE MANUAL

US Model
Canadian Model
IFU-1271
AEP Model
IFU-1271M



SPECIFICATIONS

Frequency reponse
- RGB: 100 MHz ±3 dB (RGB OUT)
- Video: 15 MHz ±3 dB
- Audio: 25 kHz ±2 dB

OUTPUT connectors
- R/VIDEO: BNC type
  - Red signal output: 0.7 Vp-p ±3 dB, 75 ohms impedance
  - Composite video signal output: 1 Vp-p ±3 dB, 75 ohms impedance
- G/Y: BNC type
  - Green signal output: 0.7 Vp-p ±3 dB, 75 ohms impedance
  - Y(luminance) signal output: 1 Vp-p ±3 dB, 75 ohms impedance
- B/C: BNC type
  - Blue signal output: 0.7 Vp-p ±3 dB, 75 ohms impedance
  - C(chrominance) signal output: (burst signal)
    - C(NTSC)-0.286 Vp-p ±3 dB, 75 ohms impedance
    - C(PAL)-0.3 Vp-p ±3 dB, 75 ohms impedance
- SYNC/HD:BNC type
  - Horizontal sync signal/composite sync signal output,1 Vp-p ±3 dB, 75 ohms impedance
- VD: BNC type
  - Vertical sync signal output, 1 Vp-p ±3 dB, 75 ohms impedance
- AUDIO L/R: phono jack
  - Audio signal output, 436 m Vrms, less than 1 kohm impedance

Power requirements IFU-1271
120 V AC, 50/60 Hz
IFU-1271M
220 to 240 V AC, 50/60 Hz

Power consumption 40 W

Dimensions Approx. 211 × 88 × 200 mm (w/h/d) ($16^{3}/_{4} \times 5^{1}/_{4} \times 11^{1}/_{2}$ inches)

Weight Approx. 3 kg (15 lb 7 oz)

Accessories supplied
AC power cord (1)

Design and specifications are subject to change without notice.

MICROFILM

SIGNAL INTERFACE UNIT

SONY®

TABLE OF CONTENTS

Section	Title	Page
1.	GENERAL	
1-1.	Rear board Removal	3
1-2.	Warning	3
1-3.	Precautions	3
1-4.	Features	3
1-5.	Location and Function of Parts	4
1-6.	Mounting the Signal Interface Board	6
2.	DISASSEMBLY	
2-1.	Cover, Front Panel Assembly and X1 Board Removal	7
2-2.	Rear Panel Assembly, Q Board and X2 Board Removal	7
2-3.	M Board Removal	8
2-4.	F Board Removal	8
2-5.	A Board Removal	9
2-6.	Switching Regulator Removal	9
3.	CIRCUIT DESCRIPTIONS	10
4.	DIAGRAMS	
4-1.	Circuit Boards Location	12
4-2.	Printed Wiring Boards and Schematic Diagrams	12
4-3.	Semiconductors	19
5.	EXPLODED VIEW	
5-1.	Chassis	20
6.	ELECTRICAL PARTS LIST	21

(CAUTION)

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

WARNING!!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.
THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

(ATTENTION)

APRES AVOIR DECONNECTE LE CAP DE L'ANODE, COURTCIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.

ATTENTION!!

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHÁSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÉ LORS DE TOUT DÉPANNAGE. LE CHÁSSIS DE CE RÉCEPTEUR EST DIRECTEMENT RACCORDÉ Á L'ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS ÁLA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET PAR UNE MAPQUE ⚠ SUR LES SCHÉMAS DE PRINCIPE, LES VUES EXPLOSÉES ET LES LISTES DE PIECES CONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÉCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR SONY.

SECTION 1
GENERAL

1-1. REAR BOARD REMOVAL

The model and serial numbers are located on the rear. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No IFU-1271/1271M Serial No._____

1-2. WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

For the customers in the USA

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

For the customers in Canada

This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

1-3. PRECAUTIONS

On safety

- Should any liquid or solid object fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Disconnect the AC power cord from the wall outlet if the unit is not to be used for an extended period of time.
- Only a qualified personnel should mount or dismount the signal interface board.

On installation

- Allow adequate air circulation to prevent internal heat build-up. Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation holes.
  Be aware that room heat rises to the ceiling; check that temperature near the installation location is not excessive.
- Do not install the unit in a location near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust or humidity, mechanical vibration or shock.

On cleaning

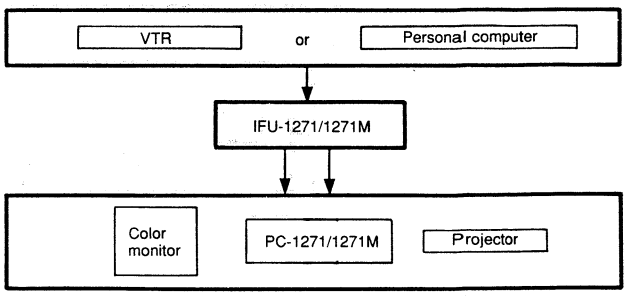
To keep the cabinet looking brand-new, periodically clean it with a soft cloth. Stubborn stains may be removed with a cloth lightly dampened with a mild detergent solution. Never use strong solvents, such as thinner or benzine, or abrasive cleansers, since these will damage the cabinet.

On repacking

Save the original shipping carton and packing material; they will come in handy if you ever have to ship your unit. For maximum protection, repack your unit as it was originally packed at the factory.

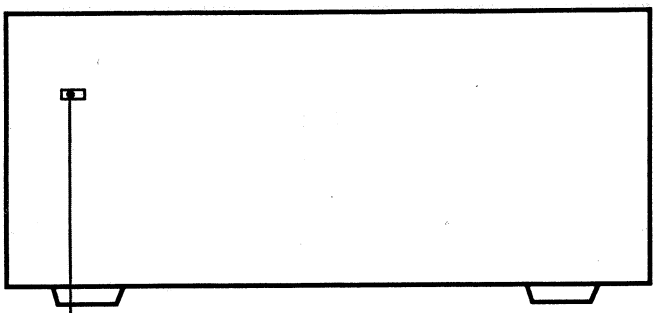
1-4. FEATURES

The IFU-1271 /1271M signal interface unit can be used to divide input signals from a VTR or personal computer into two outputs for connecting projector and monitor, etc.
Use the unit by mounting an IFB series signal interface board (not supplied).
The unit can output the input signal from the mounted interface board throughly, or can change to output the signal as a negative composite sync signal by setting of the switch on the rear panel.



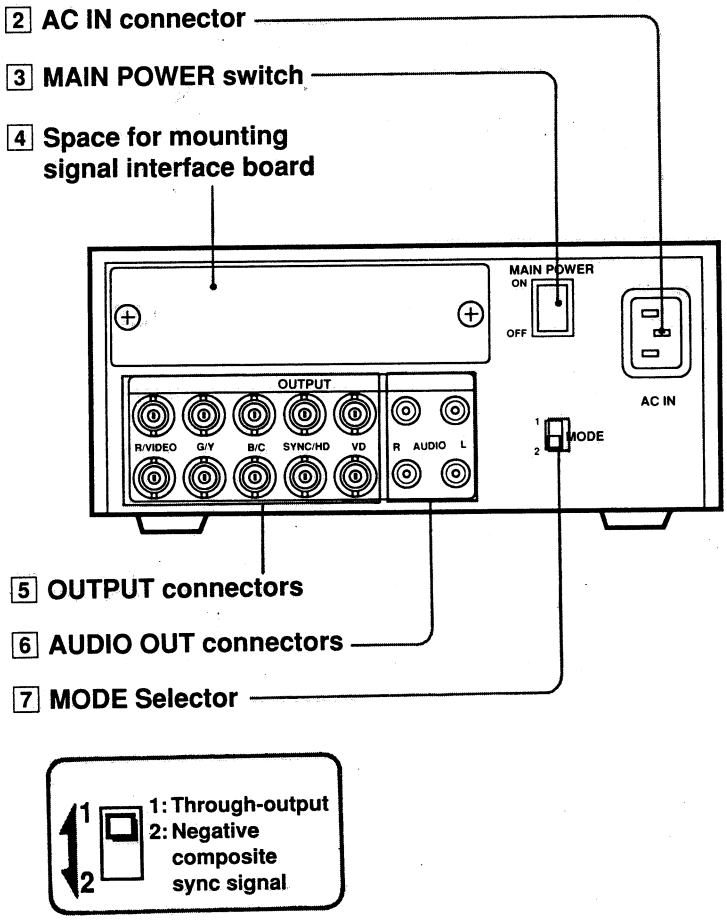
1-5. LOCATION AND FUNCTION OF PARTS

Front panel



1 POWER lamp

Rear panel



* For details on the signal interface boards (not supplied), refer to the manual of the signal interface boards.
Refer to page 6 for details of mounting.

1 POWER lamp
The lamp lights in green when the MAIN POWER switch on the rear panel set to ON.

2 AC IN connector
Connect to an AC outlet.

3 MAIN POWER switch
Press ON side to turn on the power.
Press OFF side to turn off the power.

4 Space for mounting a signal interface board
Mount an IFB series signal interface board (not supplied).

5 OUTPUT connectors
These output the split input signal connected to the signal interface board mounted on the unit. Connect these connectors to the monitor or projector, etc. (R-Y, Y, B-Y outputs when SW1 is set to COMP during the connection of IFB-1200.

R/VIDEO/R-Y(BNC type)	: Outputs the red signal or the composite video signal
G/Y/R-Y(BNC type)	: Outputs the green signal or the luminance (Y) signal
B/C/B-Y(BNC type)	: Outputs the blue signal or the chrominance (C) signal
SYNC/HD(BNC type)	: Outputs the composite sync signal or the horizontal sync signal
VD(BNC type)	: Outputs the vertical sync signal

6 AUDIO OUT L/R connectors (phono jack)
Outputs the stereo audio signal.
In case of a monaural audio signal, the same signal is output from both L and R jacks.

7 MODE selector
Select the mode of the output sync signal which is output from the SYNC/HD connector.
1: Select to output throughly the input signal connected to the signal interface board mounted on the unit.
2: Select to output the sync signal converted into negative composite sync signal.

Notes on connection

- Turn off the power to all equipment before making any connection.
- Make firm connection. A loose connection may cause hum or noise.
- When disconnecting a cord, pull it out by grasping the plug. Never pull the cord itself.
- To prevent interference, turn off all connected equipment which is not currently use.
- If there is noise in the picture or sound, try moving the equipment further apart.

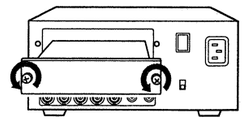
1-6. MOUNTING THE SIGNAL INTERFACE BOARD

Precautions

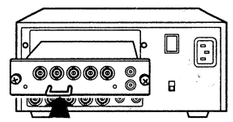
- Turn off the power before mounting or dismounting operation.
- Avoid touching the pins and electronic parts on the board when removing it from the package.
- The board consists of high-precision electronic parts. Do not drop it or bump it against other objects.
- If a problem occurs, contact an authorized Sony representative.

Mounting the Signal Interface Board

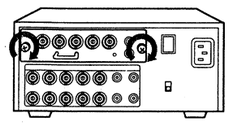
1 Loosen the screws completely and remove the panel.



2 Push in the board along the rail.

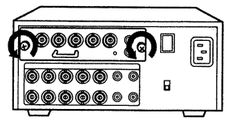


3 Secure the board with the screws.

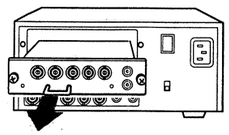


Dismounting the Signal Interface Board

1 Loosen the screws completely.

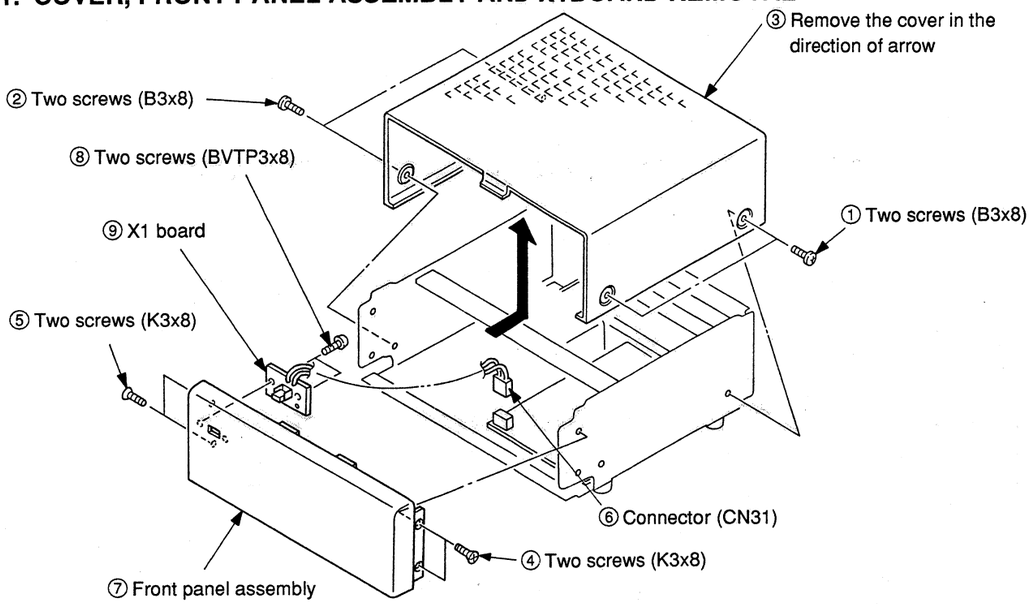


2 Hold the handle and pull out the boad.

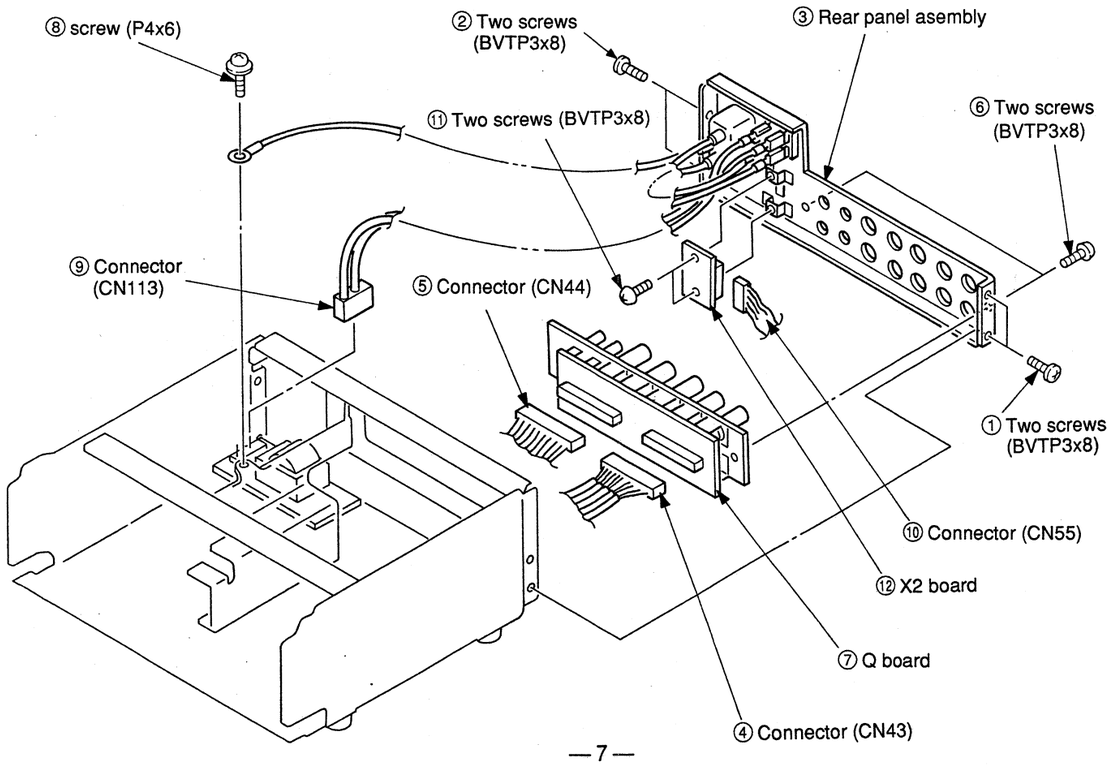


SECTION 2
DISASSEMBLY

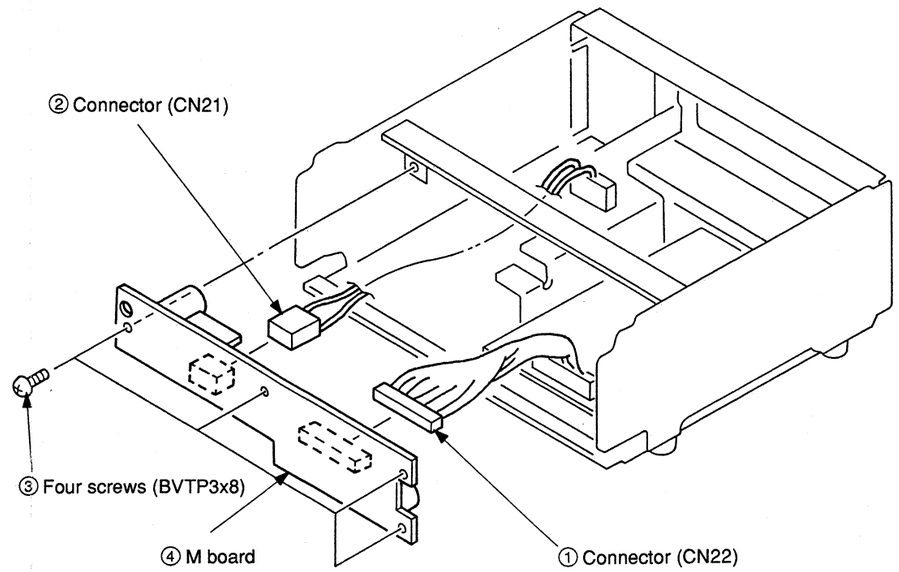
2-1. COVER, FRONT PANEL ASSEMBLY AND X1BOARD REMOVAL


③ Remove the cover in the direction of arrow
② Two screws (B3x8)
⑧ Two screws (BVTP3x8)
⑨ X1 board
① Two screws (B3x8)
⑤ Two screws (K3x8)
⑥ Connector (CN31)
④ Two screws (K3x8)
⑦ Front panel assembly

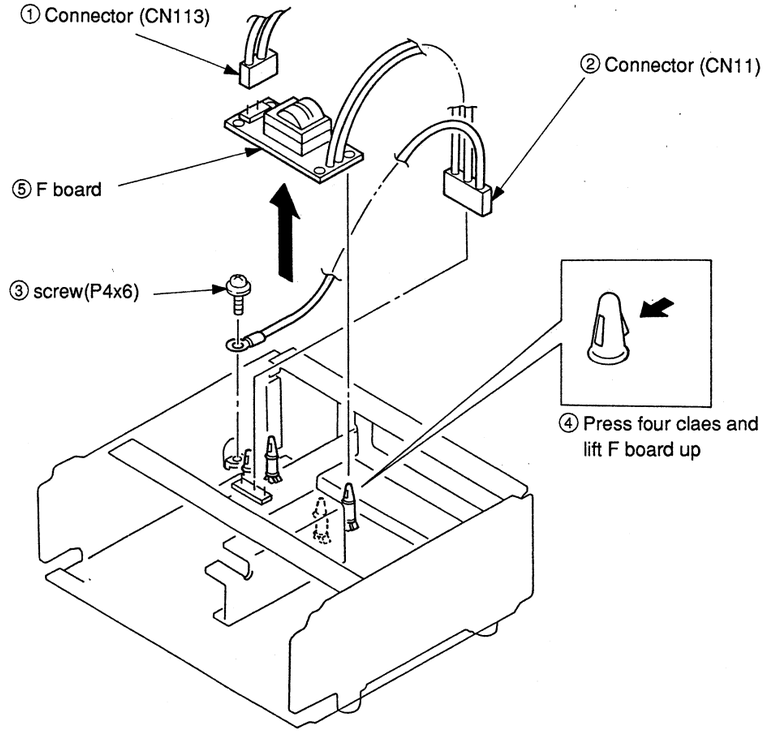
2-2. REAR PANEL ASSEMBLY, Q BOARD AND X2 BOARD REMOVAL



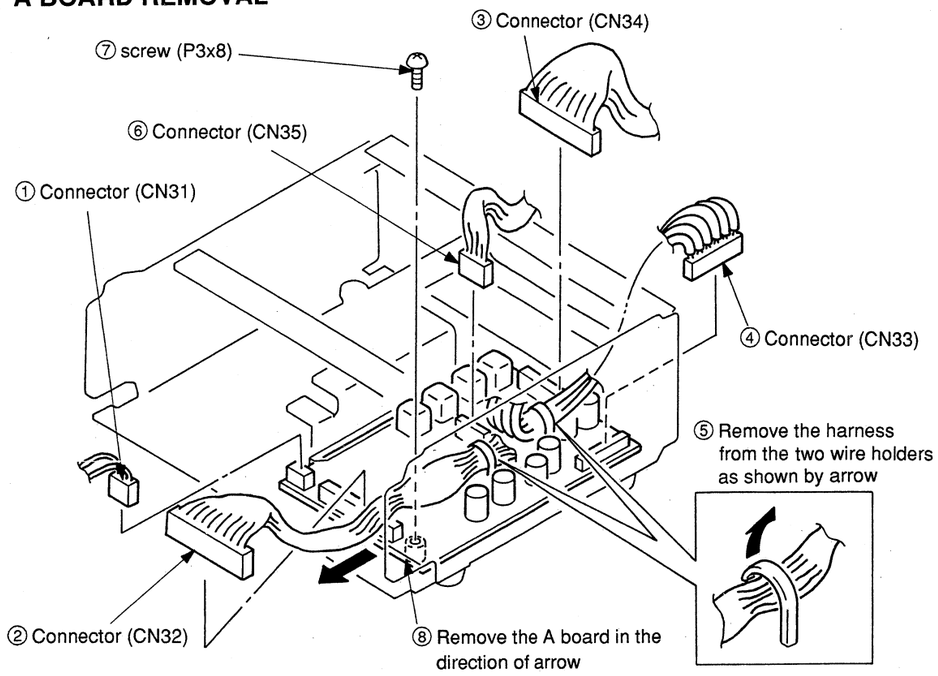
2-3. M BOARD REMOVAL



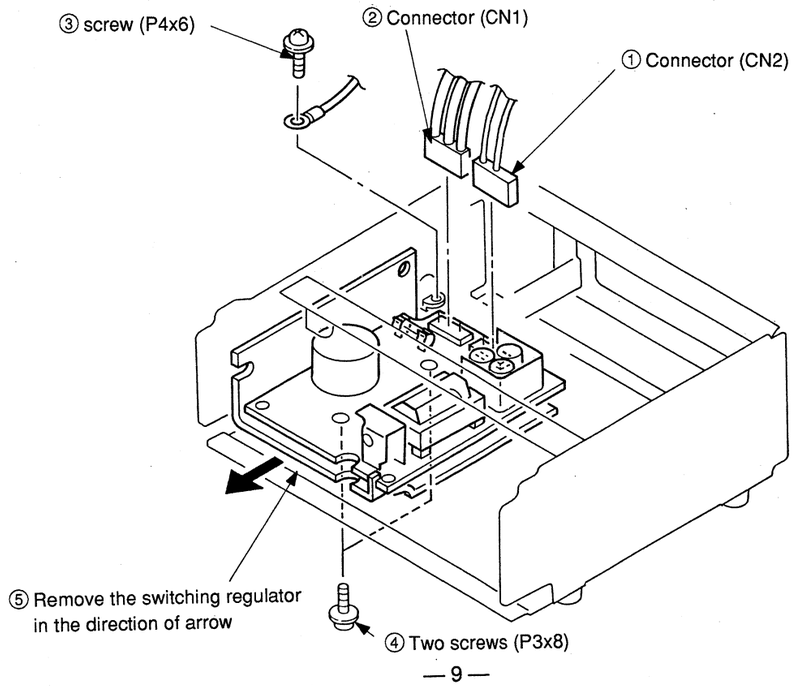
2-4. F BOARD REMOVAL



2-5. A BOARD REMOVAL


⑦ screw (P3x8)
③ Connector (CN34)
⑥ Connector (CN35)
① Connector (CN31)
④ Connector (CN33)
⑤ Remove the harness from the two wire holders as shown by arrow
② Connector (CN32)
⑧ Remove the A board in the direction of arrow

2-6. SWITCHING REGULATOR REMOVAL



SECTION 3
CIRCUIT DESCRIPTIONS

IFU-1271 is the unit which can distribute the output of two systems according to AV input signals of the input board.

1. POWER SUPPLY

When MAIN POWER SW on the rear panel turns on and AC power (100V to 240V) is fed to the unit, +12V is supplied to the mother board through the switching regulator.

2. MOTHER BOARD (M board)

Mother board is composed of the signal line from the each input board and the power block.

+12V line from the switching regurator is charged into the condensers C2, C3, C4 and C5 via noise filter (F1), and then the power supply is stabilized. While this power is supplied to the each input board, it is also input into the regurator (ICI) on the mother board, passing through CN22 together with the output (+9V) of the regurator to be used as power supply of A board. 64 Pin DIN connector (J1) supplies +12V power to the input board (④ Pin a-c), and outputs +5V to Pin ㉗ c via Zener diode (D2). Also it receives the each signal of input board and feeds them to A board via CN22.

3. BUFFER BOARD (A board)

CN32 receives the signal and power source of CN22 on the mother board.

<Video buffer>

R/C. VIDEO, G/Y and B/C signals fed from Pins ⑮, ⑬, ⑪ of CN32 can be switched to color or monochrome output by change-over jumpers JP3 and JP4.

When the jumpers are set to R/C side of JP3 and B/C side of JP4, each signal passes through video buffers IC1, IC2, IC3 and IC4, IC5, IC6 so that two systems of R/C. VIDEO, G/Y, B/C are output at CN33 (Pins ① ②, Pins ⑤ ⑦ and Pins ⑨ ⑪).

When the jumpers are set to the B/W sides of JP3 and JP4, G/Y signal is divided into six signals and they pass through the each video buffer to output the monochrome of two systems.

<Audio>

Q2, Q3, Q4 and Q5, Q6, Q7 are audio-amplifiers of audio L, R signals input from CN32 (Pin ②) and CN32 (Pin ③). Signals output from Q4 and Q7 are extracted their DC components by audio transformers (T1, T2) and (T3, T4), after that they passing through the rely (RL1) and becoming two systems of audio L output and audio R output to be fed to CN34 (Pins ⑨ ⑪) and CN34 (Pins ⑬ ⑮).

(In order to prevent the noise, relay RL1 turns on about 0.3 sec. later after power on.)

<Sync signal>

HD/C. SYNC. VD signals are input from CN32 (Pin ⑥, Pin ⑤). In case of positive logic, IC12 (Pin ⑪, Pin ③) becomes high level and in negative logic, it becomes low level. According to one of these two levels and CN35 (Pin ④) level, the polarity of output sync signal is decided and is output to IC12 (Pin ⑧, Pin ⑥). CN35 is connected to the change-over switch of sync on the rear panel. When SW is set to OFF side (HD side), output signal will be fed to IC13 (Pin ⑨, Pin ④) absolutely in the same way as input one. When SW is set to ON side (C. SYNS side), the sync signal of the negative porality will be output, whether the input signal is positive or negative.

Q8, IC8 and IC9 generate the positive logic pulse in accordance with the timing of sync signal's falling. After this pulse is added into VD vertical sync signal at IC10, signal is fed to Pin ⑧ of IC10. When the cange-over switch of sync on the rear panel is turnd on, it is connected with IC13 (Pin ⑨).

HD/C. SYNC and VD signals are output to IC13 (Pin ⑦ and Pin ⑫), whose circuit is a open-collector output, so setting to JP1 or JP2 is needed.

When setting is done to the 1 side, HD/C.SYNC and VD output are converted to 1 Vp-p (at 75Ω termination).

When setting is done to the 2 side, output are converted to 2 Vp-p (at 75Ω termination).

After Q9, Q11, Q12 and Q10, Q13, Q14 become two systems of HD/C. SYNC and VD output at each buffer, they are fed to CN34 (Pin ①, Pin ③) and CN34 (Pin ⑤ Pin ⑦). CN33 and CN34 are linked to BNC connector, pin-jack and etc. so that two systems of AV and SYNC signals are output to each connector.

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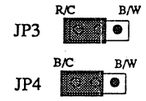
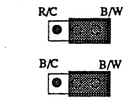
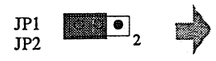
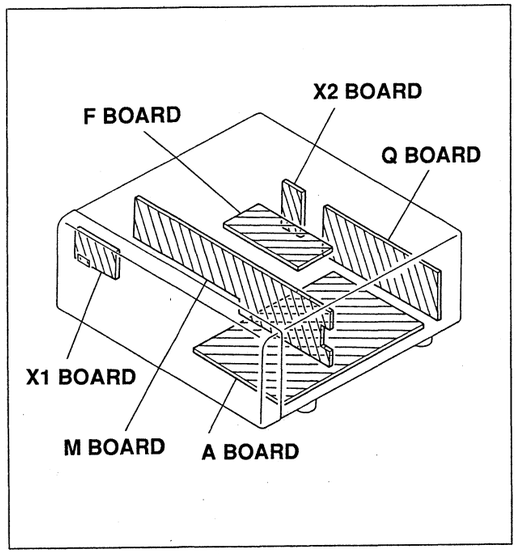
4. IFU-1271 SW FUNCTIONS AND SETTINGS FUNCTION

Function		SW Setting
Output Sync switching	Switches the output sync to the throughout/ forced composite sync (Ex. Switches when connecting VPH-1031QJ, etc.)	**MODE** REAR PANEL (During shipment : 1) Outputs the input sync by through (2 : Sync output = Composite sync) Converts input sync to composite sync and outputs
Corresponds to monochrome signal	Sets and switches when the input signal is B&W.	**JP3, JP4** Board A (inside unit) Not required when set by IFB-11 (During shipment)  (During monochrome signal input) 
Output sync level switching	Switches the output sync level to 1 Vp-p/2 Vp-p (Ex. Switches to 2 Vp/p when connecting GVM, etc.)	**JP1, JP2** Board A (inside unit) JP1.. HD JP2.. VD (During shipment : 1 Vp-p) (Level modification : 2 Vp-p) 

SECTION 4
DIAGRAMS

4-1. CIRCUIT BOARDS LOCATION



4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

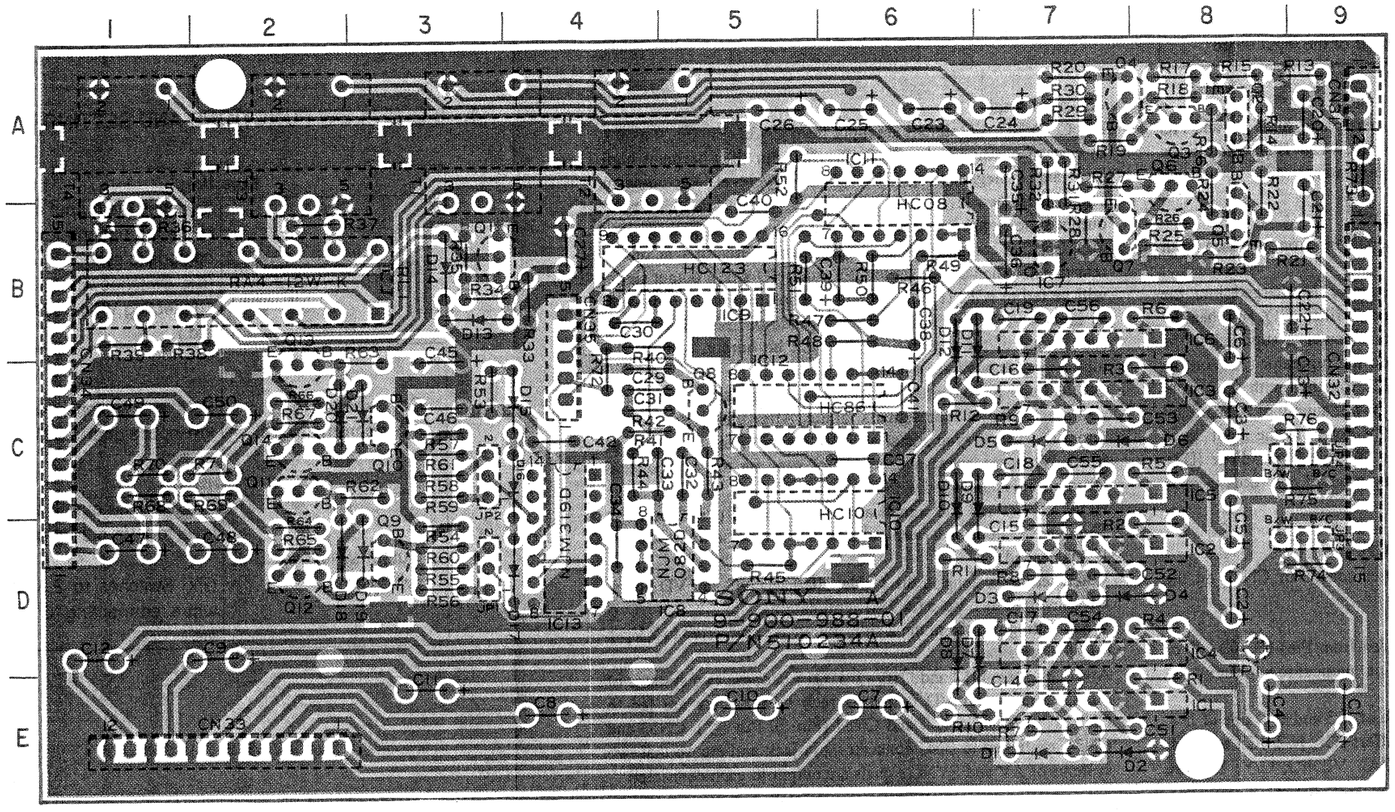
Note:

- All capacitors are in µF unless otherwise noted. p: µµF 50WV or less are not indicated except and electrolytics.
- All electrolytics are in 50V unless otherwise noted.
- All resistors are in ohms. kΩ = 1000Ω, MΩ = 1000Ω
- Indication of resistance, which does not have one for rating electrical power, is as follows.

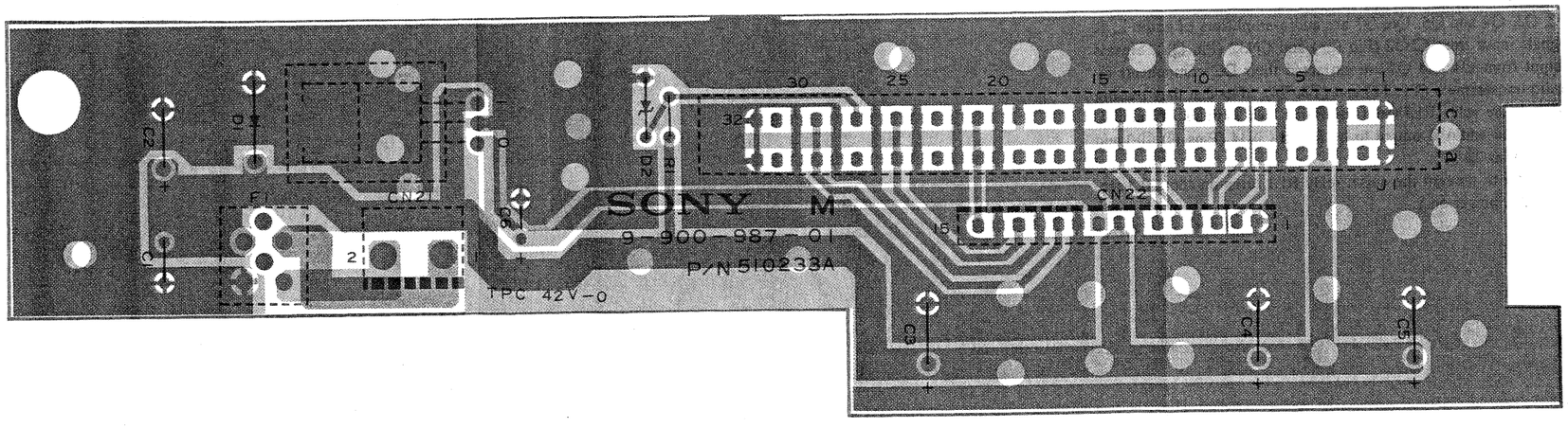
  Pitch: 5 mm
  Rating electrical power 1/4W
- FW: nonflammable resistor.
- ▭: panel designation, and adjustment for repair.
- Readings are taken with an analog RGB and component color-bar signal input.
- Readings are taken with a 10 MΩ digital multimeter.
- Voltage variations may be noted due to normal production tolerance.
- All voltages are in V.
- Circled numbers are waveform references.
- ▬: B+ bus.
- ▭: adjustment for repair.

A [VIDEO BUFFER] **M** [MOTHER]

— A Board —



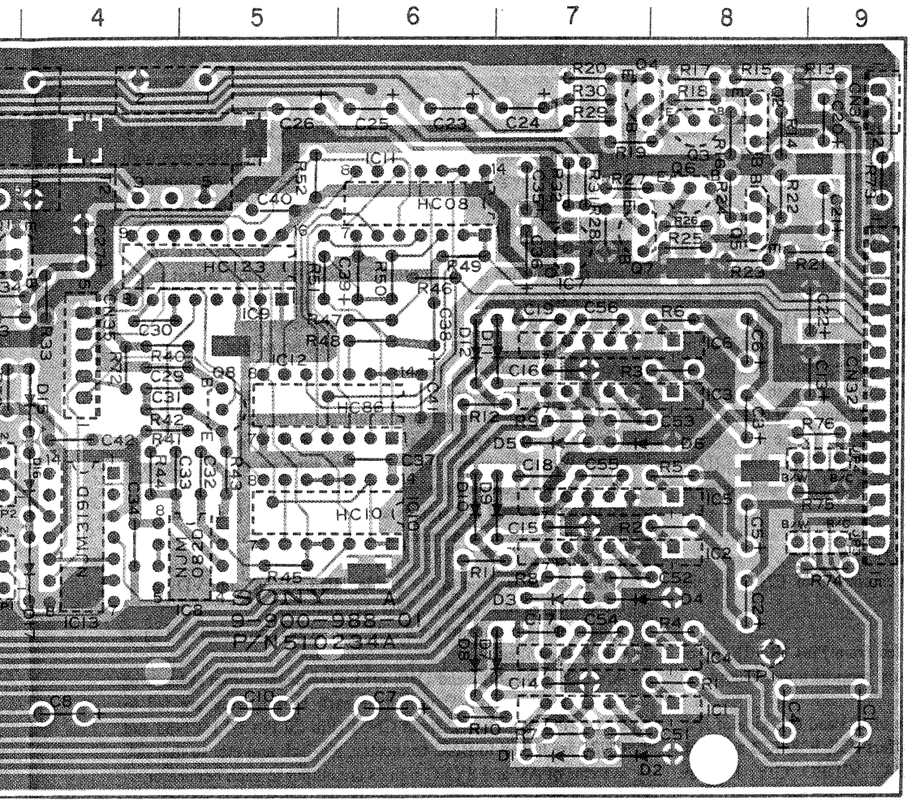
— M Board —

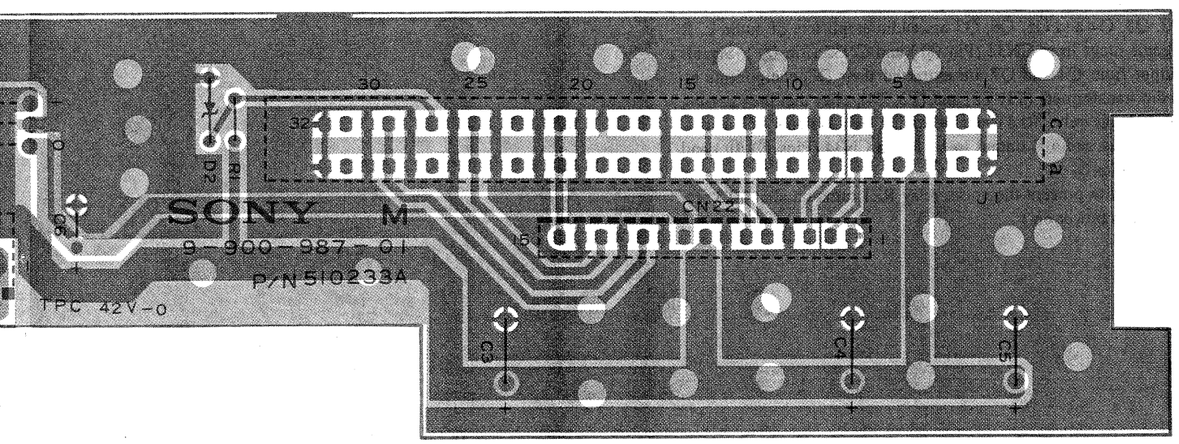


— A Board —

IC		DIODE	
IC1	E-7	D1	E-7
IC2	D-7	D2	E-7
IC3	C-7	D3	D-7
IC4	D-7	D4	D-7
IC5	C-7	D5	C-7
IC6	B-7	D6	C-7
IC7	B-7	D7	D-7
IC8	D-5	D8	D-6
IC9	B-5	D9	C-7
IC10	C-6	D10	C-6
IC11	B-6	D11	B-7
IC12	C-5	D12	B-6
IC13	D-4	D13	B-3
TRANSISTOR		D14	B-3
Q1	B-3	D15	C-4
Q2	A-8	D16	C-4
Q3	A-8	D17	D-4
Q4	A-7	D18	D-2
Q5	B-8	D19	D-3
Q6	B-8	D20	C-2
Q7	B-7	D21	C-3
Q8	C-5		
Q9	D-3		
Q10	C-3		
Q11	C-2		
Q12	D-2		
Q13	C-2		
Q14	C-2		

[MOTHER]



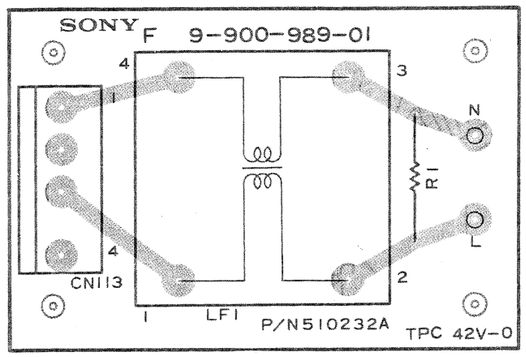


— A Board —

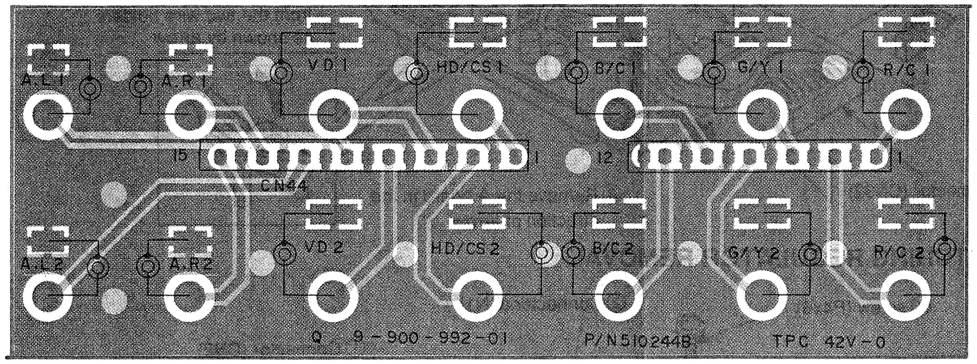
IC		DIODE	
IC1	E-7	D1	E-7
IC2	D-7	D2	E-7
IC3	C-7	D3	D-7
IC4	D-7	D4	D-7
IC5	C-7	D5	C-7
IC6	B-7	D6	C-7
IC7	B-7	D7	D-7
IC8	D-5	D8	D-6
IC9	B-5	D9	C-7
IC10	C-6	D10	C-6
IC11	B-6	D11	B-7
IC12	C-5	D12	B-6
IC13	D-4	D13	B-3
		D14	B-3
TRANSISTOR		D15	C-4
		D16	C-4
Q1	B-3	D17	D-4
Q2	A-8	D18	D-2
Q3	A-8	D19	D-3
Q4	A-7	D20	C-2
Q5	B-8	D21	C-3
Q6	B-8		
Q7	B-7		
Q8	C-5		
Q9	D-3		
Q10	C-3		
Q11	C-2		
Q12	D-2		
Q13	C-2		
Q14	C-2		

F [LINE FILTER] **Q** [TERMINAL] **X2** [MODE SELECTOR] **X1** [POWER LAMP]

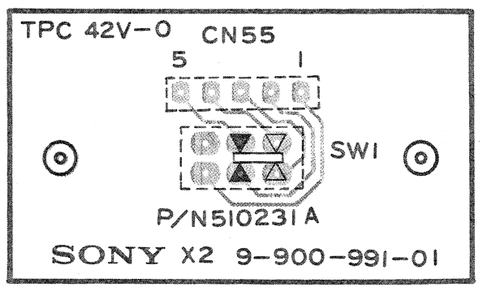
— F Board —



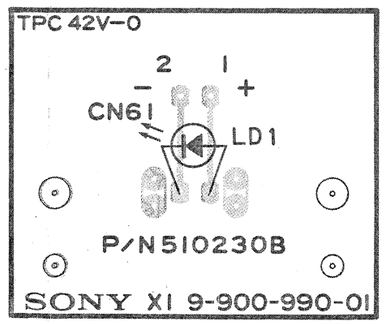
— Q Board —

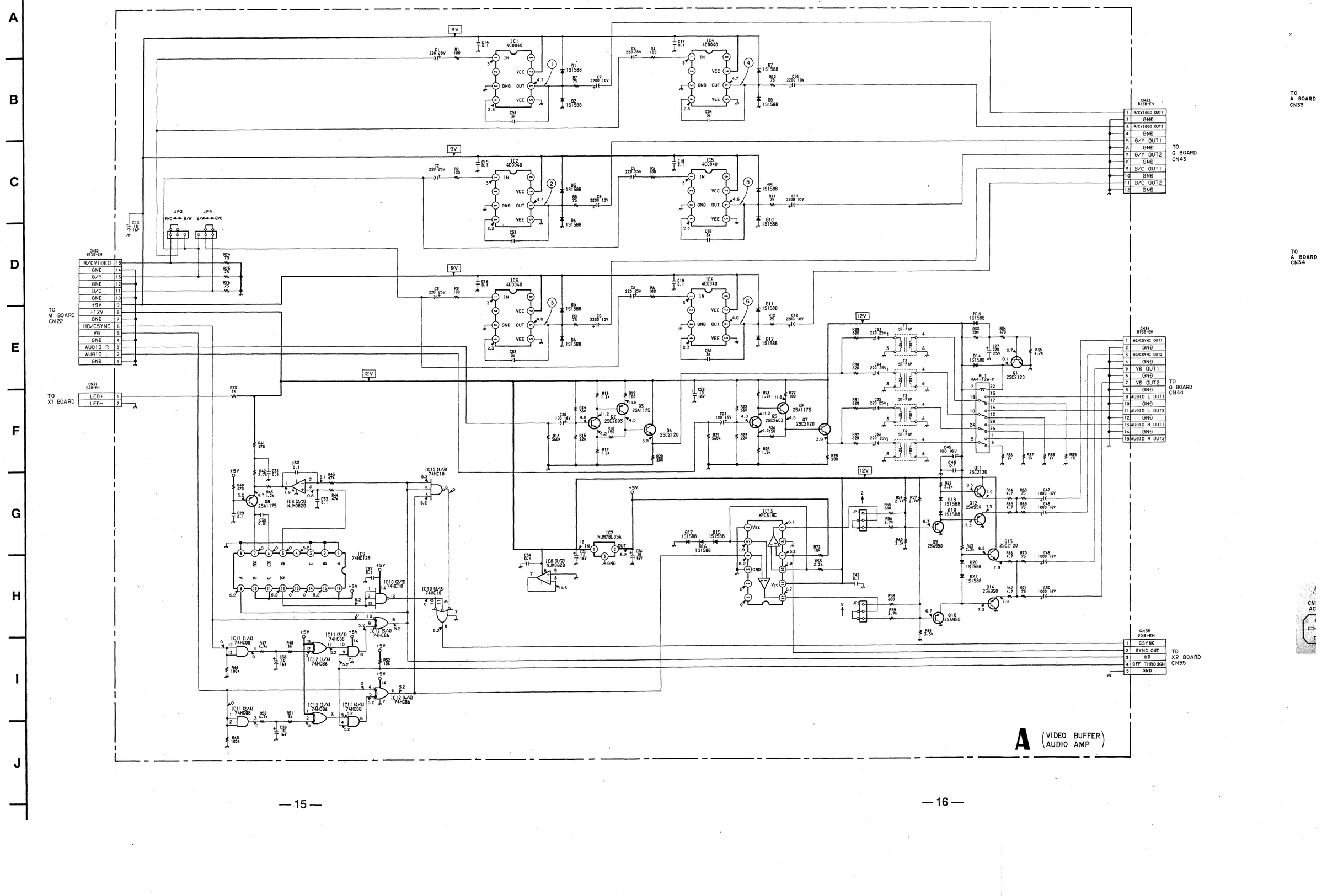


— X2 Board —

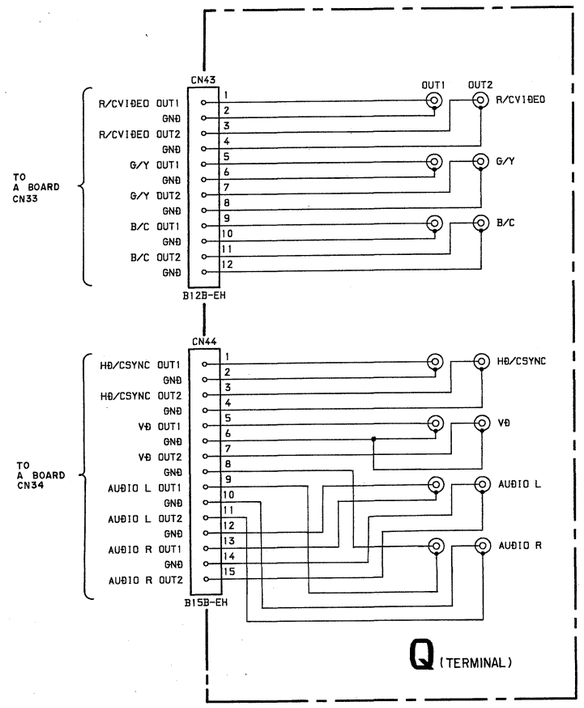


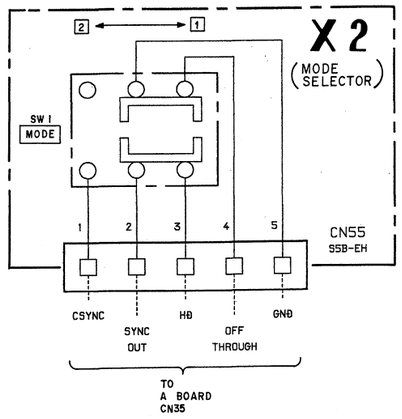
— X1 Board —

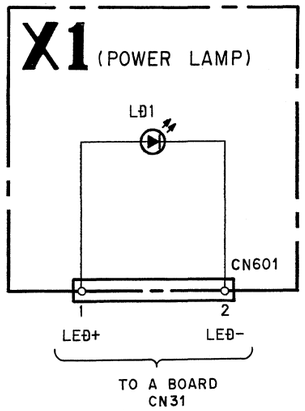



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J
9V
12V
IC1 4C0040
IC2 4C0040
IC3 4C0040
IC4 4C0040
IC5 4C0040
IC6 4C0040
IC7 NJM78L05A
IC8 (1/2) NJM082B
IC8 (2/2) NJM082B
IC9 74HCT123
IC10 74HC10
IC11 74HC08
IC12 74HC86
IC13 #PC519C
CN32 B15B-EH
R/CVIDEO
GND
G/Y
B/C
+9V
+12V
HD/CSYNC
VD
AUDIO R
AUDIO L
TO M BOARD CN22
CN51 B2B-EH
LED+
LED-
TO X1 BOARD
JP3 R/C B/W
JP4 B/W B/C
CN33 B12B-EH
R/CVIDEO OUT1
R/CVIDEO OUT2
G/Y OUT1
G/Y OUT2
B/C OUT1
B/C OUT2
TO A BOARD CN33
TO Q BOARD CN43
CN34 B15B-EH
HD/CSYNC OUT1
HD/CSYNC OUT2
VD OUT1
VD OUT2
AUDIO L OUT1
AUDIO L OUT2
AUDIO R OUT1
AUDIO R OUT2
TO A BOARD CN34
TO Q BOARD CN44
CN35 B5B-EH
CSYNC
SYNC OUT
HD
OFF THROUGH
GND
TO X2 BOARD CN55
Q1 2SC2120
Q2 2SC2603
Q3 2SA1175
Q4 2SC2120
Q5 2SC2603
Q6 2SA1175
Q7 2SC2120
Q8 2SA1175
Q9 2SA950
Q10 2SA950
Q11 2SC2120
Q12 2SA950
Q13 2SC2120
Q14 2SA950
RL1 RA4-12W-K
A (VIDEO BUFFER) (AUDIO AMP)

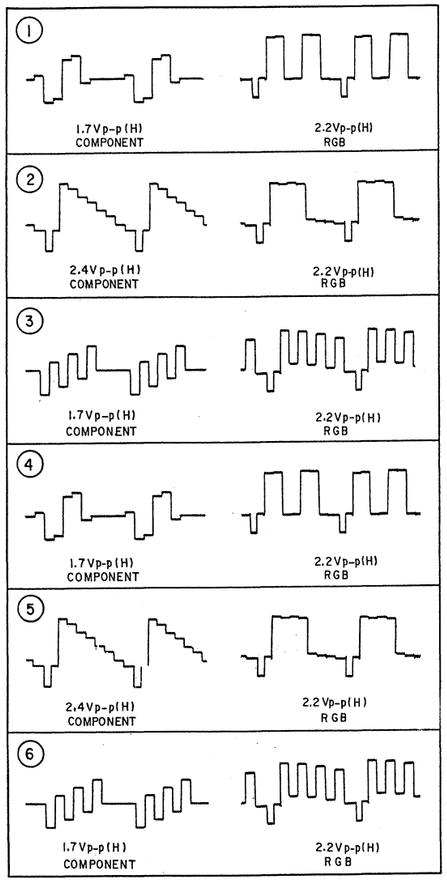
15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

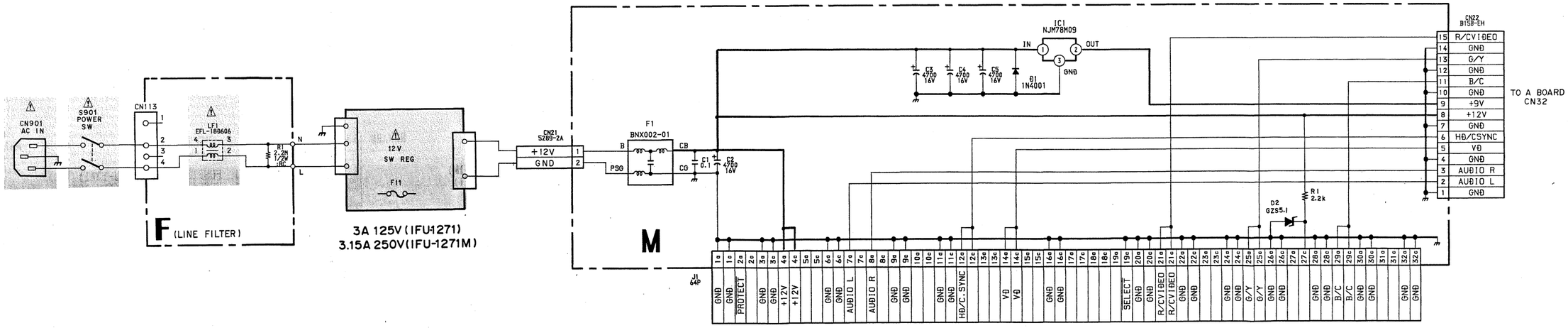






— A Board —

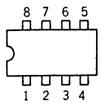




4-3. SEMICONDUCTORS

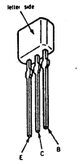
4C0040

TL082CP

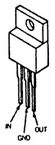


RC78L05A

2SA1175-HFE
2SC2785-HFE

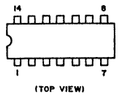


RC78M09FA

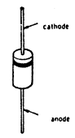


2SC2120-Y

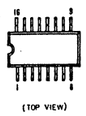
SN74HC08N
SN74HC86AN
UPC319C



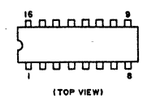
10E2
1S1588



SN74HC157ANS



TC74HC123AP



SECTION 5
EXPLODED VIEW

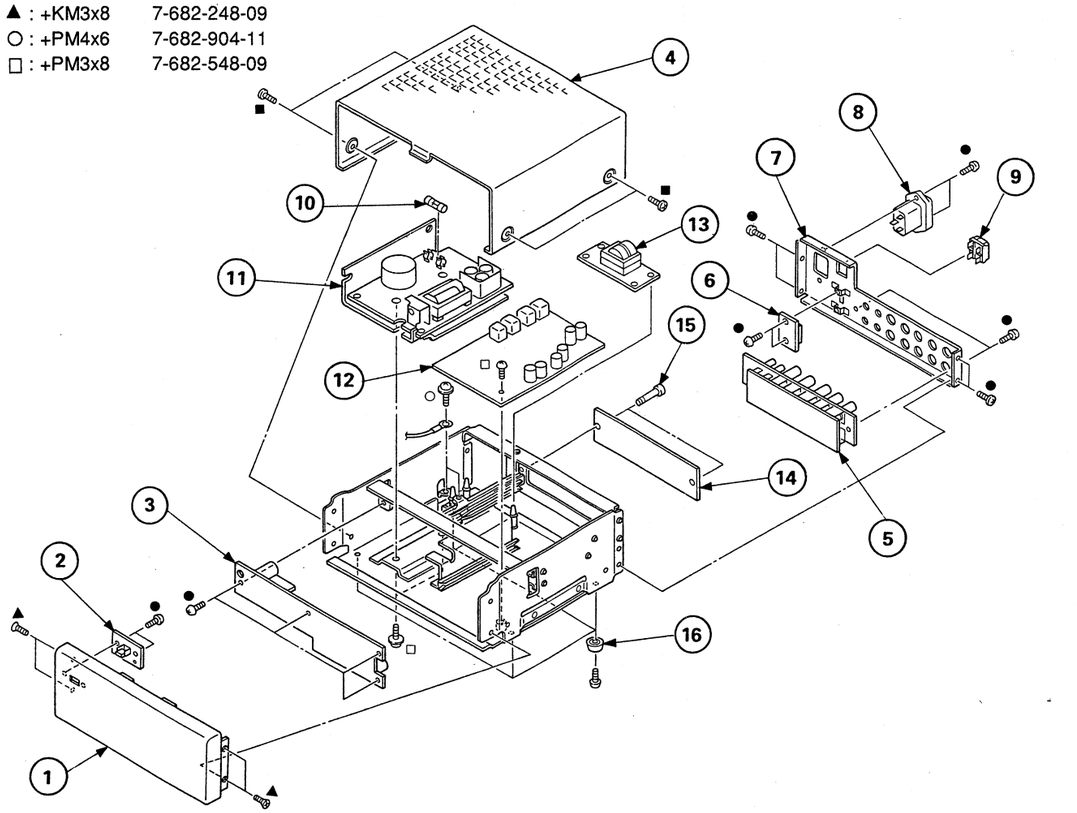
NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

5-1. CHASSIS

● : +BVTP3x8 7-685-646-79
■ : +BM3x8 7-682-548-09
▲ : +KM3x8 7-682-248-09
○ : +PM4x6 7-682-904-11
□ : +PM3x8 7-682-548-09



REF.NO.	PART NO.	DESCRIPTION	REMARK
1	X-4030-226-1	PANEL ASSY, FRONT (IFU-1271M)	
	X-4030-227-1	PANEL ASSY, FRONT (IFU-1271)	
2	*9-900-990-01	X1 BOARD	
3	*9-900-987-01	M BOARD	
4	*4-035-411-01	COVER	
5	*9-900-992-01	Q BOARD	
6	*9-900-991-01	X2 BOARD	
7	*4-035-408-01	PANEL, REAR	
8	⚠ 9-902-533-01	INLET, AC(3P)	
9	⚠ 9-902-534-01	SWITCH, AC POWER	
10	⚠ 9-902-345-01	FUSE(3A 125V) (IFU-1271)	
	⚠ 9-902-344-01	FUSE(3.15A 250V) (IFU-1271M)	
11	⚠ 9-902-211-01	SWITCHING REGULATOR (P30-E-12J)	
12	*9-902-213-01	A BOARD, MOUNTED	
13	*9-900-989-01	F BOARD	
14	4-035-771-01	PLATE, BLIND	
15	4-396-203-01	SCREW	
I6	*4-906-391-01	FOOT B2, RUBBER	

M

NOTE:

The comp
shading ar
for safety.
Replace o
specified.

Les compos
trame et u
critiques pc
Ne les remp
portant le nu

REF.NO. PART

*9-90

C1 9-99
C2 1-12
C3 1-12
C4 1-12
C5 1-12

C6 1-12

J1
CN21 *9-
CN22 *1-

D1 8-71
D2 9-90

F1 9-90

IC1 8-75

R1 1-249

****

*9-902

C1 1-124
C2 1-124
C3 1-124
C4 1-124
C5 1-124

C6 1-124
C7 1-124
C8 1-124
C9 1-124
C10 1-124

C11 1-124
C12 1-124
C13 1-126
C14 9-996
C15 9-996

M A

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by shading and mark ⚠ are critical for safety:
Replace only with part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS
- All resistors are in ohms
- F: nonflammable

When indicating parts by reference number, please include the board name.

CAPACITORS
- MF: μF, PF: μμF

COILS
- MMH: mH, UH: μH

REF.NO.	PART NO.	DESCRIPTION			REMARK
	*9-900-987-01	M BOARD *******			
		<CAPACITOR>			
C1	9-996-186-01	CERAMIC	0.1MF	50V	
C2	1-124-898-11	ELECT	4700MF 20%	16V	
C3	1-124-898-11	ELECT	4700MF 20%	16V	
C4	1-124-898-11	ELECT	4700MF 20%	16V	
C5	1-124-898-11	ELECT	4700MF 20%	16V	
C6	1-126-157-11	ELECT	10MF 20%	16V	
		<CONNECTOR>			
J1	1-568-981-11	CONNECTOR, MALE 64P			
CN21	*9-902-218-01	PLUG, CONNECTOR 2P			
CN22	*1-564-596-11	PLUG, CONNECTOR 15P			
		<DIODE>			
D1	8-719-200-02	DIODE 10E2			
D2	9-902-535-01	DIODE CZS5.1			
		<FILTER>			
F1	9-902-219-01	FILTER BNX002-01			
		<IC>			
IC1	8-759-982-34	IC RC78M09FA			
		<RESISTOR>			
R1	1-249-421-11	CARBON	2.2K 5%	1/4W	

****

REF.NO.	PART NO.	DESCRIPTION			REMARK
	*9-902-213-01	A BOARD, COMPLETE **********			
		<CAPACITOR>			
C1	1-124-120-11	ELECT	220MF 20%	25V	
C2	1-124-120-11	ELECT	220MF 20%	25V	
C3	1-124-120-11	ELECT	220MF 20%	25V	
C4	1-124-120-11	ELECT	220MF 20%	25V	
C5	1-124-120-11	ELECT	220MF 20%	25V	
C6	1-124-120-11	ELECT	220MF 20%	25V	
C7	1-124-893-11	ELECT	2200MF 20%	10V	
C8	1-124-893-11	ELECT	2200MF 20%	10V	
C9	1-124-893-11	ELECT	2200MF 20%	10V	
C10	1-124-893-11	ELECT	2200MF 20%	10V	
C11	1-124-893-11	ELECT	2200MF 20%	10V	
C12	1-124-893-11	ELECT	2200MF 20%	10V	
C13	1-126-157-11	ELECT	10MF 20%	16V	
C14	9-996-186-01	CERAMIC	0.1MF	50V	
C15	9-996-186-01	CERAMIC	0.1MF	50V	
C16	9-996-186-01	CERAMIC	0.1MF	50V	
C17	9-996-186-01	CERAMIC	0.1MF	50V	
C18	9-996-186-01	CERAMIC	0.1MF	50V	
C19	9-996-186-01	CERAMIC	0.1MF	50V	
C20	1-126-101-11	ELECT	100MF 20%	16V	
C21	1-126-101-11	ELECT	100MF 20%	16V	
C22	1-126-157-11	ELECT	10MF 20%	16V	
C23	1-124-120-11	ELECT	220MF 20%	25V	
C24	1-124-120-11	ELECT	220MF 20%	25V	
C25	1-124-120-11	ELECT	220MF 20%	25V	
C26	1-124-120-11	ELECT	220MF 20%	25V	
C27	1-124-120-11	ELECT	220MF 20%	25V	
C29	9-996-186-01	CERAMIC	0.1MF	50V	
C30	9-902-220-01	CERAMIC	0.01MF	50V	
C31	9-996-186-01	CERAMIC	0.1MF	50V	
C32	9-996-186-01	CERAMIC	0.1MF	50V	
C33	9-996-186-01	CERAMIC	0.1MF	50V	
C34	9-996-186-01	CERAMIC	0.1MF	50V	
C35	1-126-157-11	ELECT	10MF 20%	16V	
C36	1-126-157-11	ELECT	10MF 20%	16V	
C37	9-996-186-01	CERAMIC	0.1MF	50V	
C38	1-126-157-11	ELECT	10MF 20%	16V	
C39	1-126-157-11	ELECT	10MF 20%	16V	
C42	9-996-186-01	CERAMIC	0.1MF	50V	
C45	1-126-101-11	ELECT	100MF 20%	16V	
C46	1-996-186-01	CERAMIC	0.1MF	50V	
C47	1-124-360-00	ELECT	1000MF 20%	16V	
C48	1-124-360-00	ELECT	1000MF 20%	16V	
C49	1-124-360-00	ELECT	1000MF 20%	16V	
C50	1-124-360-00	ELECT	1000MF 20%	16V	
C51	9-902-536-01	CERAMIC	1.5PF	50V	
C52	9-902-536-01	CERAMIC	1.5PF	50V	
C53	9-902-536-01	CERAMIC	1.5PF	50V	
C54	9-902-536-01	CERAMIC	1.5PF	50V	
C55	9-902-536-01	CERAMIC	1.5PF	50V	
C56	1-102-936-00	CERAMIC	3PF	50V	
		<CONNECTOR>			
CN31	*1-564-505-11	PLUG, CONNECTOR 2P			
CN32	*1-564-596-11	PLUG, CONNECTOR 15P			
CN33	*1-564-515-11	PLUG, CONNECTOR 12P			
CN34	*1-564-596-11	PLUG, CONNECTOR 15P			
CN35	*1-564-508-11	PLUG, CONNECTOR 5P			
		<DIODE>			
D1	8-719-820-59	DIODE 1S1588			
D2	8-719-820-59	DIODE 1S1588			
D3	8-719-820-59	DIODE 1S1588			
D4	8-719-820-59	DIODE 1S1588			
D5	8-719-820-59	DIODE 1S1588			

A

REF.NO.	PART NO.	DESCRIPTION			REMARK
D6	8-719-820-59	DIODE 1S1588			
D7	8-719-820-59	DIODE 1S1588			
D8	8-719-820-59	DIODE 1S1588			
D9	8-719-820-59	DIODE 1S1588			
D10	8-719-820-59	DIODE 1S1588			
D11	8-719-820-59	DIODE 1S1588			
D12	8-719-820-59	DIODE 1S1588			
D13	8-719-820-59	DIODE 1S1588			
D14	8-719-820-59	DIODE 1S1588			
D15	8-719-820-59	DIODE 1S1588			
D16	8-719-820-59	DIODE 1S1588			
D17	8-719-820-59	DIODE 1S1588			
D18	8-719-820-59	DIODE 1S1588			
D19	8-719-820-59	DIODE 1S1588			
D20	8-719-820-59	DIODE 1S1588			
D21	8-719-820-59	DIODE 1S1588			
		<IC>			
IC1	9-996-108-01	IC 4C0040			
IC2	9-996-108-01	IC 4C0040			
IC3	9-996-108-01	IC 4C0040			
IC4	9-996-108-01	IC 4C0040			
IC5	9-996-108-01	IC 4C0040			
IC6	9-996-108-01	IC 4C0040			
IC7	8-759-982-21	IC RC78L05A			
IC8	8-759-990-82	IC TL082CP			
IC9	8-759-239-47	IC TC74HC123AP			
IC10	8-759-916-18	IC SN74HC157ANS			
IC11	8-759-916-16	IC SN74HC08AN			
IC12	8-759-921-10	IC SN74HC86AN			
IC13	8-759-103-19	IC UPC319C			
		<TRANSISTOR>			
Q1	8-729-212-02	TRANSISTOR 2SC2120-Y			
Q2	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q3	8-729-119-76	TRANSISTOR 2SA1175-HFE			
Q4	8-729-212-02	TRANSISTOR 2SC2120-Y			
Q5	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q6	8-729-119-76	TRANSISTOR 2SA1175-HFE			
Q7	8-729-212-02	TRANSISTOR 2SC2120-Y			
Q8	8-729-119-76	TRANSISTOR 2SA1175-HFE			
Q9	8-729-202-56	TRANSISTOR 2SA950-Y			
Q10	8-729-202-56	TRANSISTOR 2SA950-Y			
Q11	8-729-212-02	TRANSISTOR 2SC2120-Y			
Q12	8-729-202-56	TRANSISTOR 2SA950-Y			
Q13	8-729-212-02	TRANSISTOR 2SC2120-Y			
Q14	8-729-202-56	TRNSISTOR 2SA950-Y			
		<RESISTOR>			
R1	1-249-405-11	CARBON	100 5%	1/6W F	
R2	1-249-405-11	CARBON	100 5%	1/6W F	
R3	1-249-405-11	CARBON	100 5%	1/6W F	
R4	1-249-405-11	CARBON	100 5%	1/6W F	
R5	1-249-405-11	CARBON	100 5%	1/6W F	
R6	1-249-405-11	CARBON	100 5%	1/6W F	
R7	1-247-804-11	CARBON	75 5%	1/6W	
R8	1-247-804-11	CARBON	75 5%	1/6W	
R9	1-247-804-11	CARBON	75 5%	1/6W	
R10	1-247-804-11	CARBON	75 5%	1/6W	
R11	1-247-804-11	CARBON	75 5%	1/6W	
R12	1-247-804-11	CARBON	75 5%	1/6W	
R13	1-247-897-11	CARBON	560K 5%	1/6W	
R14	1-247-868-11	CARBON	36K 5%	1/6W	
R15	1-249-433-11	CARBON	22K 5%	1/6W F	
R16	1-249-418-11	CARBON	1.2K 5%	1/6W F	
R17	1-249-419-11	CARBON	1.5K 5%	1/6W F	
R18	1-249-407-11	CARBON	150 5%	1/6W F	
R19	1-249-405-11	CARBON	100 5%	1/6W F	
R20	1-247-814-11	CARBON	200 5%	1/6W	
R21	1-247-897-11	CARBON	560K 5%	1/6W	
R22	1-247-868-11	CARBON	36K 5%	1/6W	
R23	1-249-433-11	CARBON	22K 5%	1/6W F	
R24	1-249-418-11	CARBON	1.2K 5%	1/6W F	
R25	1-249-419-11	CARBON	1.5K 5%	1/6W F	
R26	1-249-407-11	CARBON	150 5%	1/6W F	
R27	1-249-405-11	CARBON	100 5%	1/6W F	
R28	1-247-814-11	CARBON	200 5%	1/6W	
R29	1-247-826-00	CARBON	620 5%	1/6W	
R30	1-247-826-00	CARBON	620 5%	1/6W	
R31	1-247-826-00	CARBON	620 5%	1/6W	
R32	1-247-826-00	CARBON	620 5%	1/6W	
R33	1-247-862-11	CARBON	20K 5%	1/6W	
R34	1-249-413-11	CARBON	470 5%	1/6W F	
R35	1-249-425-11	CARBON	4.7K 5%	1/6W F	
R36	1-249-417-11	CARBON	1K 5%	1/6W F	
R37	1-249-417-11	CARBON	1K 5%	1/6W F	
R38	1-249-417-11	CARBON	1K 5%	1/6W F	
R39	1-249-417-11	CARBON	1K 5%	1/6W F	
R40	1-249-413-11	CARBON	470 5%	1/6W F	
R41	1-249-413-11	CARBON	470 5%	1/6W F	
R42	1-249-422-11	CARBON	2.7K 5%	1/6W F	
R43	1-249-418-11	CARBON	1.2K 5%	1/6W F	
R44	1-249-437-11	CARBON	47K 5%	1/6W F	
R45	1-249-437-11	CARBON	47K 5%	1/6W F	
R46	1-249-441-11	CARBON	100K 5%	1/6W F	
R47	1-249-425-11	CARBON	4.7K 5%	1/6W F	
R48	1-249-417-11	CARBON	1K 5%	1/6W F	
R49	1-249-441-11	CARBON	100K 5%	1/6W F	
R50	1-249-425-11	CARBON	4.7K 5%	1/6W F	
R51	1-249-417-11	CARBON	1K 5%	1/6W F	
R52	1-249-429-11	CARBON	10K 5%	1/6W F	
R53	1-249-421-11	CARBON	2.2K 5%	1/6W F	
R54	1-249-422-11	CARBON	2.7K 5%	1/6W F	
R55	1-249-415-11	CARBON	680 5%	1/6W F	
R56	1-249-422-11	CARBON	2.7K 5%	1/6W F	
R57	1-249-422-11	CARBON	2.7K 5%	1/6W F	
R58	1-249-415-11	CARBON	680 5%	1/6W F	
R59	1-249-422-11	CARBON	2.7K 5%	1/6W F	
R60	1-249-423-11	CARBON	3.3K 5%	1/6W F	
R60	1-249-427-11	CARBON	6.8K 5%	1/6W F	
R61	1-249-423-11	CARBON	3.3K 5%	1/6W F	
R61	1-249-432-11	CARBON	18K 5%	1/6W F	
R62	1-249-421-11	CARBON	2.2K 5%	1/6W F	
R62	1-249-427-11	CARBON	6.8K 5%	1/6W F	
R63	1-249-421-11	CARBON	2.2K 5%	1/6W F	
R63	1-249-432-11	CARBON	18K 5%	1/6W F	
R64	1-249-389-11	CARBON	4.7 5%	1/6W F	
R65	1-249-389-11	CARBON	4.7 5%	1/6W F	
R66	1-249-389-11	CARBON	4.7 5%	1/6W F	
R67	1-249-389-11	CARBON	4.7 5%	1/6W F	
R68	1-247-804-11	CARBON	75 5%	1/6W	
R69	1-247-804-11	CARBON	75 5%	1/6W	
R70	1-247-804-11	CARBON	75 5%	1/6W	
R71	1-247-804-11	CARBON	75 5%	1/6W	
R72	1-249-429-11	CARBON	10K 5%	1/6W F	
R73	1-249-417-11	CARBON	1K 5%	1/6W F	
R74	1-247-804-11	CARBON	75 5%	1/6W	
R75	1-247-804-11	CARBON	75 5%	1/6W	
R76	1-247-804-11	CARBON	75 5%	1/6W	

X1 X2 Q F A

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

REF.NO.	PART NO.	DESCRIPTION	REMARK
		<RELAY>	
RL1	9-902-222-01	RELAY RA4-12W-K	
		<TRANSFORMER>	
T1	9-902-221-01	TRANSFORMER ST-71P	
T2	9-902-221-01	TRANSFORMER ST-71P	
T3	9-902-221-01	TRANSFORMER ST-71P	
T4	9-902-221-01	TRANSFORMER ST-71P	
	*9-900-989-01	F BOARD	
		<CONNECTOR>	
CN113	*9-902-223-01	PLUG, CONNECTOR 4P	
		<FILTER>	
LF1	⚠1-421-776-11	EFT-18D606	
		<RESISTOR>	
R1	1-202-723-00	SOLID 2.2M	1/2W
	*9-900-992-01	Q BOARD	
		<CONNECTOR>	
CN43	*1-564-515-11	PLUG, CONNECTOR 12P	
CN44	*1-564-596-11	PLUG, CONNECTOR 15P	
	*9-900-991-01	X2 BOARD	
		<CONNECTOR>	
CN55	*9-902-225-01	PLUG, CONNECTOR 5P	
		<SWITCH>	
SW1	*9-902-224-01	(MODE SELECT)	
	*9-900-990-01	X1 BOARD	
		<CONNECTOR>	
CN61	*1-564-517-11	PLUG, CONNECTOR 2P	
		<LED>	
LD1	8-719-420-94	LN342GPH	

REF.NO.	PART NO.	DESCRIPTION	REMARK
		MISCELLANEOUS	
	⚠9-902-211-01	SWITCHING REGULATOR (P30-E-12J)	
CN901	⚠9-902-533-01	INLET, AC (3P)	
S901	⚠9-902-534-01	AC POWER SWITCH	
F11	⚠9-902-345-01	FUSE (3A 125V) (IFU-1271)	
	⚠ 9-902-344-01	FUSE (3.15A 250V) (IFU-1271M)	

ACCESSORIES & PACKING MATERIALS

PART NO.	DESCRIPTION	REMARK
⚠1-557-377-11	CORD, POWER (7.0A/125V) (IFU-1271)	
⚠ 1-590-151-11	CORD, POWER (10.0A/250V) (IFU-1271M)	
*3-704-285-01	BAG (STANDARD), PROTECTION	
3-754-434-11	MANUAL, INSTRUCTION	
*4-035-719-01	INDIVIDUAL CARTON (IFU-1271)	
*4-035-723-01	INDIVIDUAL CARTON (IFU-1271M)	
*4-035-720-01	SHEET, CORRUGATED FIBERBOARD	
*4-035-721-01	CUSHION (B)	
*4-035-722-01	CUSHION (A)	